



Combustion Controls Solutions
& Environmental Services, Inc.

Mr. Al Maronta
Ferrara Pan Candy Co.
7301 W. Harrison ST.
Forest Park, IL. 60130

November 27, 2015

Subject: Field Inspection Report
Reference: **CCS&ES, Inc.** Project # 2015074

Dear Mr. Maronta;

CCS&ES, Inc. field technician arrived at your facility on November 29th for the purpose of conducting an offline inspection and Catalyst change. Please find the inspection report below detailing items that required attention and/or actions taken and recommended actions for the long term operation of the unit.

Combustion Controls Solutions & Environmental Services, Inc. appreciates the opportunity to visit your facility. Our goal is to provide our customers with the information and abilities to extend the service life of your thermal oxidizer assets. We look forward to providing future services, parts and or upgrades, as these services may be required. Should you have any questions or require additional information you may contact me at your convenience.

Sincerely,

Thomas Grant
Thermal Oxidizer Specialist
Phone: 419.841.9984 direct ext. 112
Email: Thomas@oxidizerservice.com



Catalytic Off-Line Inspection Report

Ferarra Pan Candy Company
Catalytic Thermal Oxidizer

Project 2015074
November 27, 2015

MAINTENANCE AND INSPECTION REPORT

OFFERED BY

COMBUSTION CONTROLS SOLUTIONS
&
ENVIRONMENTAL SERVICES, INC.

FOR

FERRERA PAN CANDY COMPANY

FOREST PARK, IL.



CCS&ES PROJECT 2015074

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1.0 CENTRAL CHAMBER

1.1 Central Chamber Internals

Constructed of high temperature alloy, interior condition noted satisfactory with no heavy particulate or process build-up. No external hotspots were noted that would indicate faulty insulation.

Action Required

Yearly inspection is the correct preventive maintenance. Internals should be inspected for the damaging effects of heat especially in the areas of construction welds.

1.2 Central Chamber Access Doors

Door frames and associated hardware noted satisfactory.

Action Required

Inspect on a yearly basis.

1.3 Central Chamber External

Inspected exposed outer portions of unit for corrosion. Unit exterior, insulation, and protective aluminum skin noted to be in satisfactory condition.

Action Required

Yearly inspection is the proper preventive maintenance action to perform.

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2.0 CATALYST BEDS

2.1 Catalyst Beds

Catalyst beds within this unit are made up of multiple alloy trays containing Pro-Pel precious metal, spherical catalyst. Catalyst trays were inspected for structural integrity and found to be satisfactory. Catalyst levels are normal as Catalyst was replaced on this visit

Action Required

Yearly inspection and sampling to determine catalyst effectiveness is the proper preventive maintenance procedure. Testing was not done on this inspection.

3.0 PRIMARY HEAT EXCHANGER

3.1 Primary heat exchanger

The primary heat exchanger is located within the unit central chamber. Flow of the process VOC's is as follows. The booster fan pushes the VOC's through the inlet side of the heat exchanger where they are preheated by the outgoing exhaust. The inlet VOC's then travel through the burner and then through the Catalyst banks and finally back through the heat exchanger to preheat the incoming vapors.

The heat exchanger was inspected for plugging, cracks, faulty welds or any other mechanical deficiency that might be detrimental to the long term operation of the unit. All areas of the heat exchanger appear to be in satisfactory condition.

Action Required

Yearly inspection is the correct preventive maintenance procedure heat exchanger.

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4.0 FORCED DRAFT FAN

4.1 Forced Draft Fan (Booster Fan)

The system forced draft fan was inspected for the following: Excess vibration, fan wheel process buildup, drive belt condition, motor condition, shaft bearing wear and proper lubrication of bearings. All other areas of the fan appear to be in satisfactory condition. Drive belts and sheaves are in satisfactory condition.

Action Required

Yearly inspection is the correct preventive maintenance procedure. Lubrication of shaft bearings with high quality grease should be done monthly. At least once yearly the fan wheel should be cleaned of all particulate buildup prior to balance issues arising.

5.0 BURNER, FUEL TRAIN, AND SAFETY TESTING

5.1 Burner, Fuel Train and System Safety Testing

The burner, fuel train and all related components were inspected for code relevance, mechanical integrity and proper, safe operation. All components of the burner and fuel train were found to be in satisfactory condition at this time.

Action Taken:

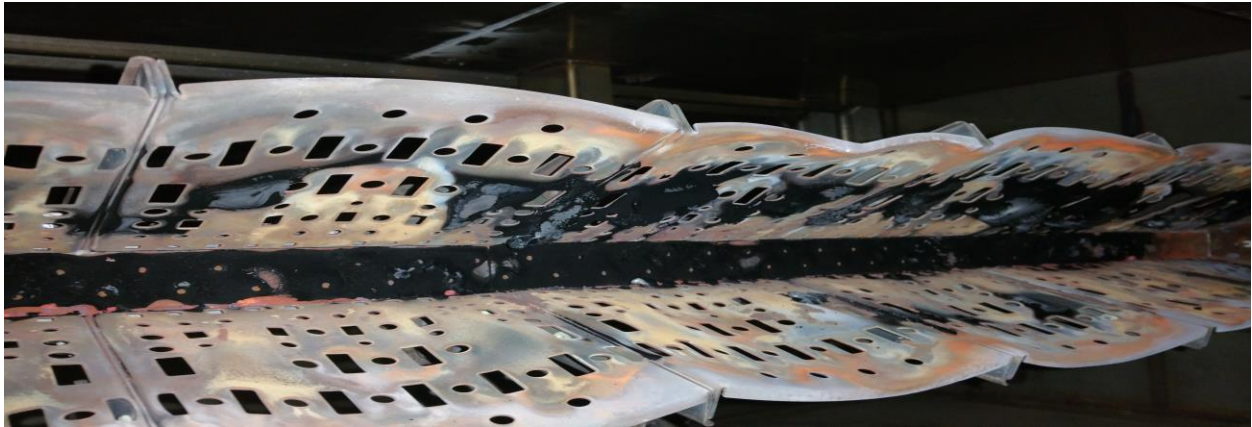
All burner system safeties and interlocks were tested for proper code compliance and safety during operation. All system safeties were found to be operating as required and are considered satisfactory at this time.

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5.0 BURNER, FUEL TRAIN, AND SAFETY TESTING



Before cleaning



After cleaning

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5.0 BURNER, FUEL TRAIN, AND SAFETY TESTING

(Continued)

Safety System Tested	Intended Action	As Found Action
System Purge Timer Satisfactory	1 minute 30 seconds System Pilot Lights Followed by Main Flame Ignition	1 minute 30 seconds System Pilot Lights Followed by Main Flame Ignition
Low gas pressure Satisfactory	Low Gas Pressure Fault Alarm Flame failure requires manual reset on Honeywell controller. Gas Block valves close.	Low Gas Pressure Fault Alarm Flame failure, required manual reset on Honeywell controller. Gas Block valves close.
High gas pressure Satisfactory	High Gas Pressure Fault Alarm System shutdown. Gas Block valves close.	High Gas Pressure Fault Alarm System Shutdown Gas Block valves close.
High Temperature Exceeded Satisfactory	High Temperature Exceeded Alarm System Shutdown	High Temperature Exceeded Alarm System Shutdown
Loss of Flame Signal Satisfactory	Flame Safety Fault Flame Failure Requires Manual Reset of Alarm	Flame Safety Fault Flame Failure Required Manual Reset of Alarm
Loss of Booster fan Pressure Satisfactory	Booster Fan Air Flow Fault System Shutdown	Booster Fan Air Flow Fault System Shutdown
Operational Test of Process "T" Damper Satisfactory	Process Opens to Atmosphere upon Loss of Unit Operation. Process Opens to Oxidizer Upon Meeting all safety requirements.	Process Opens to Atmosphere upon Loss of Unit Operation. Process Opens to Oxidizer Upon Meeting all safety requirements.
Operational Test of Unit Fresh Air Damper Satisfactory	Fresh Air Damper Open During Purge and Upon Loss of System Operational Safety Interlocks	Fresh Air Damper Verified Open During Purge and Upon Loss of System Operational Safety Interlocks

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6.0 FRESH AIR DAMPER & INLET DUCT

6.1 Fresh Air Damper

The fresh air damper was inspected for proper operation and mechanical integrity. Damper noted in satisfactory condition. Damper sequence of operation, noted to operate in a satisfactory manner.

Action Required

Yearly inspection is the correct preventive maintenance procedure.

6.2 Inlet Duct

The inlet duct to the oxidizer was inspected for process buildup of any other issue that may hinder full flow to the unit. The inlet duct appeared to be free of internal buildup and is considered satisfactory at this time.

6.0 FRESH AIR DAMPER & INLET DUCT

6.3 Inlet Duct Bag House (Filter Bank)

The inlet duct bag house and filters were inspected for dirty or damaged filters, damaged retaining hardware or any other non specified damages. All bag house filters appeared capable of allowing the required air flow volume. No filter elements were noted to be blown out or leaking but it is very evident by the process buildup within the fan and exit of the fan that blow-by is taking place.

Action Taken

None, inspection only

Action Required

The type of filter and the mounting details should be evaluated for leakage; minor process blow-by can result in serious buildup within other components of the VOC system and can cause damage if enough buildup is accumulated within the heat exchanger section to lower air flow.

7.0 Exhaust Stack

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7.1 Exhaust Stack

Exhaust stack was inspected for mechanical integrity and process buildup. Exhaust stack is in satisfactory condition at this time.

Action Required

Inspection every year is a proper preventive maintenance procedure.

8.0 THERMOCOUPLES

8.1 Thermocouples

All thermocouples were noted in satisfactory condition. For your general knowledge each thermocouple probe tends to drift every year by 15°F, negative, estimated. Every 15°F negative reading equals additional fuel input to make up the difference to operate at normal temperatures. We highly recommend replacement of each thermocouple probe annually to achieve low fuel consumption and eliminate nuisance shutdowns.

Action Required

Annual inspection, calibration, or replacement is a proper preventive maintenance procedure for your recuperative catalytic thermal oxidizer.

9.0 EXPANSION JOINTS

9.1 Expansion Joints

System expansion joints were inspected for deterioration, rips, tears, or other damage. All expansion joints were noted in satisfactory condition.

Action Required

Yearly inspection is the proper preventive maintenance procedure.

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10.0 SYSTEM CONTROLS AND RELATED COMPONENTS

The following controls were inspected visually and/or safety tested.

1. Central chamber temperature controller tuning constants are operating correctly, no faults noted.
2. Chart recorder was noted to operating in a satisfactory manner and is reading within +/- 1.5 deg. F of the true temperature.
3. Burner fuel train and related components were inspected for gas leakage.
4. Test flame scanner proper sequencing, no faults noted.
5. Confirm burner full firing range of operation for proper flame characteristics and stability, no faults noted.
6. Static pressure ports all inspected for excess condensate buildup or plugging, all found to be satisfactory.
7. Inspect relays and contacts for visual appearance, noted satisfactory with no faults.
8. Inspect all high voltage terminal connections visual appearance, noted satisfactory with no faults.
9. Operational check of flame detector for correct circuit voltage signal, noted flame signal at 5 volts, satisfactory with no faults.
10. Variable speed drive enclosure required all particulate dust fragments to be removed, noted satisfactory with no faults.
11. Variable frequency drive system power lugs and related components were inspected and tested.
12. Service distribution panel, noted satisfactory with no faults.
13. All motor starters were noted to be clean of particulate and functional, noted satisfactory with no faults.
14. Panel annunciation, noted satisfactory with no faults.
15. Panels push buttons, noted satisfactory with no faults.
16. PLC was inspected and noted to be operating correctly and is in satisfactory condition at this time.